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10/525,545	02/24/2005	Masahiko Seki	5576-176	6050
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EXAMINER				
WINKLER, MELISSA A				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/525,545

**Applicant(s)**

SEKI ET AL.

**Examiner**

MELISSA WINKLER

**Art Unit**

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 January 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SE-08)  
Paper No(s)/Mail Date 2/24/05 and 9/25/07
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Election/Restrictions*

Applicant's election without traverse of Group I, Claims 1 – 9 and 13 – 16, in the reply filed on January 23, 2008 is acknowledged.

Claims 10 - 12 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to nonelected inventions, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on January 23, 2008.

### *Priority*

Acknowledgment is made of applicant's claim for priority under 35 U.S.C. 119(a)-(d) based upon applications filed in Japan on August 28, 2001 and August 29, 2001. A claim for priority under 35 U.S.C. 119(a)-(d) cannot be based on said application, since the United States application was filed more than twelve months thereafter.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claims 1, 3, 4, 7, 14, and 15** are rejected under 35 U.S.C. 102(b) as being anticipated by US 5,824,709 to Suka.

**Regarding Claim 1.** Suka teaches a method of recycling foamed polystyrene beginning with the reduction of the volume of the foamed polystyrene (Column 2, Lines 47 – 50). The volume-reduced polystyrene is then dissolved in a bath, forming a resin mixture (Column 2, Lines 55 - 62). The resin mixture is subsequently extruded (Column 3, Lines 28 – 31).

**Regarding Claim 3.** Suka teaches the method of Claim 1 wherein the volume – reducing step comprises heating foamed polystyrene waste to 180 to 200°C (Column 3, Lines 64 – 65).

**Regarding Claim 14.** Suka teaches the method of Claim 3 wherein the solvent used in the dissolving step preferably has a boiling point between 75 and 175°C (Column 2, Lines 50 – 56).

**Regarding Claim 4.** Suka teaches the method of Claim 1 wherein the solvent used in the dissolving step preferably has a boiling point between 75 and 175°C (Column 2, Lines 50 – 56).

**Regarding Claim 7.** Suka teaches the method of Claim 1 further comprising the step of transporting the volume reduced polystyrene in the volume reduction vessel to a dissolving bath enclosed by a jacket (Column 2, Lines 47 – 56).

**Regarding Claim 15.** Suka teaches the method of Claim 7 wherein the solvent used in the dissolving step preferably has a boiling point between 75 and 175°C (Column 2, Lines 50 – 56).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 2 and 13** are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,824,709 to Suka, as applied to Claim 1 above, and further in view of US 5,217,660 to Howard.

**Regarding Claim 2.** Suka teaches the method of Claim 1 forms resin pellets that can be recycled and used again (Column 3, Line 36). While Suka does not expressly teach steps for producing an expanded product from these pellets, Howard also teaches a method of recycling polystyrene foam in which recycled expanded polystyrene foam pieces are processed to form an expanded polystyrene foam article (Column 3, Lines 10 – 55 and Column 4, Lines 14 - 21). Suka and Howard are analogous art as they are from the same field of endeavor, namely methods of recycling polystyrene foam. At the time of invention, it would have been obvious to a person of ordinary skill in the art to use the pellets comprising recycled polystyrene taught by Suka to form a new expanded polystyrene foam product. The motivation would have been that foam products from recycled polystyrene can be used in many applications, such as insulation and packaging, and their production could reduce the high levels of polystyrene waste occupying landfills (Howard: Column 1, Lines 12 – 31 and Column 2, Line 9 – 13).

**Regarding Claim 13.** Suka teaches the method of Claim 2 wherein the volume – reducing step comprises heating foamed polystyrene waste to 180 to 200°C (Column 3, Lines 64 – 65).

**Claims 5 and 6** are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,824,709 to Suka, as applied to Claim 1 above, and further in view of JP 2000-025602 to Shin-Etsu Chemical Company (hereinafter Shin-Etsu). For convenience, citations are taken from the English-language abstract provide by the applicants.

**Regarding Claims 5 and 6.** Suka teaches the method of Claim 1 but does not teach the claimed solvents are used. However, Shin-Etsu teaches the volume reduction of styrene foam using a methylene chloride and epoxide solution (Abstract, "Novelty" and "Advantage"). Suka and Shin-Etsu are analogous art as they are from the same field of endeavor, namely methods involving the volume reduction of styrene foam. At the time of invention, it would have been obvious to a person of ordinary skill in the art to use methylene chloride and epoxide solvents in the volume-reducing step in the method taught by Suka. The motivation would have been that the combination of methylene chloride and epoxide would achieved an efficient reduction in the volume of the styrene foam while reducing the chance of firing during processing (Shin-Etsu Abstract, "Advantage").

**Claims 8, 9, and 16** are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,824,709 to Suka, as applied to Claims 1 and 7 above, and further in view of US 5,217,660 to Howard.

**Regarding Claims 8 and 9.** Suka teaches the method of Claim 1 forms resin pellets that can be recycled and used again (Column 3, Line 36). While Suka does not expressly teach steps for producing an expanded product from these pellets, Howard also teaches a method of recycling polystyrene foam in which recycled expanded polystyrene foam pieces are processed to form an expanded polystyrene foam article (Column 3, Lines 10 – 55 and Column 4, Lines 14 - 21). In the method taught by Howard, the pieces of recycled polystyrene are transferred to a reaction chamber and contacted/impregnated with an expanding agent, specifically pentane gas (Column 6, Lines 15 - 44). The pieces are subsequently routed to a mixing chamber where they are mixed with other polystyrene beads. The mixture is then routed to a molding unit in which the final foam product is formed (Column 6, Line 59 – Column 7, Line 25). At the time of invention, it would have been obvious to a person of ordinary skill in the art to use the pellets comprising recycled polystyrene taught by Suka to form a new expanded polystyrene foam product using the method taught by Howard. The motivation would have been that foam products from recycled polystyrene can be used in many applications, such as insulation and packaging, and their production could reduce the high levels of polystyrene waste occupying landfills (Howard: Column 1, Lines 12 – 31 and Column 2, Line 9 – 13).



**Regarding Claim 16.** Suka teaches the method of Claim 8 wherein the solvent used in the dissolving step preferably has a boiling point between 75 and 175°C (Column 2, Lines 50 – 56).

***Prior Art***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

*Correspondence*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MELISSA WINKLER whose telephone number is (571)270-3305. The examiner can normally be reached on Monday - Friday 7:30AM - 5PM E.S.T..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on (571)272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MW  
March 20, 2008

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/James J. Seidleck/

Supervisory Patent Examiner, Art Unit 1796